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9 UNITED STATES DISTRICT COURT  
10 EASTERN DISTRICT OF WASHINGTON  
11 AT YAKIMA

12 MICHAEL SCOTT BRUMBACK,  
13 *et al.*,

14 Plaintiffs,

15 v.

16 ROBERT W. FERGUSON, *et al.*,

17 Defendants,

18 and

19 ALLIANCE FOR GUN  
20 RESPONSIBILITY,

21 Intervenor-  
22 Defendant

No. 1:22-cv-03093-MKD

DECLARATION OF  
FREDERICK P. RIVARA, MD,  
MPH IN SUPPORT OF  
RESPONSE TO PLAINTIFFS'  
MOTION FOR INJUNCTIVE  
AND DECLARATORY  
RELIEF

November 23, 2022  
With Oral Arguments 11:00 AM

23  
24 RIVARA DECL. ISO RESP. TO PLTFS' MOTION  
25 FOR INJUNCTIVE AND DECLARATORY RELIEF - 1  
Case No. 1:22-cv-03093-MKD

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1 I, Frederick P. Rivara, MD, MPH, declare as follows:

2 1. I am over the age of 18, competent to testify as to the matters herein, and  
3 make this declaration based on my personal knowledge.

4 2. I am a Professor of Pediatrics and Adjunct Professor of Epidemiology at  
5 the University of Washington, where I have been a faculty member for 38 years. I  
6 practice clinically at Harborview Medical Center, Washington State's only Level I  
7 regional adult and pediatric trauma center.

8 3. I have devoted my career to the study and prevention of injuries to  
9 individuals of all ages, and this has included injuries related to firearms. I have  
10 published over 700 articles in the peer-reviewed scientific literature, mostly on  
11 injuries. I also lead the University of Washington's Firearm Injury & Policy  
12 Research Program, which is funded by Washington State.

13 4. I have been recognized for my work with a number of awards, including  
14 the American Academy of Pediatrics, Section on Injury and Poison Prevention,  
15 Physician Achievement Award, 1994; the American Public Health Association,  
16 Injury Control and Emergency Health Services Section Distinguished Career Award,  
17 1995; the Pediatric Trauma Society Lifetime Achievement Award, 2016; and  
18 election to the National Academy of Medicine (formerly Institute of Medicine),  
19 2005.

1           5. I have provided expert testimony in two lawsuits challenging gun  
2 violence prevention laws. The first, *Mitchell v. Atkins*, 483 F. Supp. 3d 985 (W.D.  
3 Wash. 2020), involves a challenge to a Washington law that prohibits, among other  
4 things, those under the age of 21 from purchasing a semiautomatic assault rifle. The  
5 second, *Lafferty v. Amundson*, Case No. 2020CV0346 (Wis. Cir. Ct. Wash. Cnty.  
6 2021), involves a challenge to a law requiring safe storage of firearms in homes in  
7 which children are placed for foster care.  
8

9           6. I also have publicly supported reasonable and common sense restrictions  
10 on large-capacity firearm magazines (“LCMs”), which are generally defined as  
11 magazines capable of accepting more than 10 rounds of ammunition. I provided  
12 testimony in support of Engrossed Substitute Senate Bill 5078 (“ESSB 5078”)  
13 earlier this year. ESSB 5078 prohibits, with certain exceptions, the manufacture,  
14 import, distribution, and sale of LCMs. In 2020, I also provided testimony in support  
15 of Substitute Senate Bill 6077, which was a predecessor of ESSB 5078.  
16

17           7. Firearm injuries and deaths are an enormous public health problem and  
18 have been for decades. In 2021, more than 47,000 individuals in the U.S. died from  
19 firearm injuries. And the rate of deaths from firearms per 100,000 population has  
20 actually increased in recent years. Firearm injuries are a public health crisis that  
21 shows no sign of abating.  
22  
23

1 8. Firearms equipped with LCMs present a special danger to the public  
2 health. LCMs allow a firearm to shoot a large number of bullets in a short period of  
3 time and without the shooter having to pause to reload. As a result, when LCMs are  
4 used in shootings, the number of victims and deaths is generally higher.

5  
6 9. A recent analysis of mass shootings between 2009 and 2018 revealed  
7 that, of the incidents with known magazine capacity data, 59 percent involved  
8 firearms with LCMs. These shootings resulted in twice as many fatalities and 14  
9 times as many injuries per incident on average compared to those that did not  
10 include the use of LCMs.<sup>1</sup>

11  
12 10. Similarly, a recent study from Minneapolis found that incidents  
13 involving more than 10 shots fired were about 3-fold more likely to result in  
14 multiple victims shot than incidents involving 10 or fewer shots fired. Again, this  
15 makes sense given that LCMs are designed to provide the ability to fire many bullets  
16 in a very short period of time.<sup>2</sup>

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18  
19  
20 <sup>1</sup> Everytown, *Mass Shootings in America*, available at  
21 <https://everytownresearch.org/maps/mass-shootings-in-america/> (last accessed  
22 October 14, 2022).

23 <sup>2</sup> Koper CS, Johnson WD, Stesin K, Egge J. Gunshot victimisations resulting from  
24 high-volume gunfire incidents in Minneapolis: findings and policy implications.  
25 *Inj Prev* 2019;25(Suppl 1):i9-i11.

1           11. One measure of the public health impact of LCMs is the effect of  
2 restrictions on LCMs. A recent study of the effect of LCM limits on high fatality  
3 mass shootings is instructive.<sup>3</sup> Between 1990 and 2017, there were 69 high-fatality  
4 mass shootings. Attacks involving LCMs resulted in a 62% higher mean average  
5 death toll. The incidence of high-fatality mass shootings in states without LCM  
6 prohibitions was more than double the rate in states with LCM prohibitions and the  
7 annual number of deaths was more than 3 times higher. States without an LCM  
8 prohibition experienced significantly more high-fatality mass shootings and a higher  
9 death rate from such incidents. LCM limits appear to reduce both the incidence of,  
10 and number of people killed in, high-fatality mass shootings.  
11

12           12. Assault rifles are frequently paired with LCMs, and such firearms are  
13 often the weapon of choice for mass shooters. Therefore, examining laws that  
14 restrict both assault weapons and LCMs is instructive. That includes the 1994-2004  
15 federal assault weapons law—which also restricted LCMs—and its effect on  
16 decreasing firearm fatalities.<sup>4</sup> While the violent crime rate has steadily decreased  
17 from 1994 to the present, the number of gun fatalities in mass shootings decreased  
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21 <sup>3</sup> Klaveras L, Conner A, Hemenway D. The effect of large-capacity magazine bans  
22 on high-fatality mass shootings, 1990-2017. Am J Public Health 2019;109:1754-  
1761.

23 <sup>4</sup> Donohue JJ, Boulouta T. The assault weapons ban saved lives. In: SLS Blog:  
Stanford University; 2019.

1 from 81 total during the 11-year period of 1984-1994 to 49 total during the 10 years  
2 of the assault weapons ban, but increased dramatically to 219 total during the 10  
3 years thereafter, and was 217 total from 2015 to September 2, 2019. The number of  
4 deaths per incident was 8.2 while the federal assault weapons law was in effect, but  
5 was 18.1 from 2015 to 2019.  
6

7 13. In sum, the available data on LCMs indicate that they have played a  
8 disproportionate role in mass shootings in the United States and result in greater  
9 fatalities when mass shooters equip them on firearms. The available data also  
10 indicate that limits on LCMs can reduce mass shooting deaths, and thus can have an  
11 important positive impact on public health.  
12

13 14. In addition, injuries from firearms are a major burden on the health care  
14 system. If the firearm injury victim does not die at the scene of the injury, that  
15 person is brought to a hospital, often times trauma centers such as Harborview  
16 Medical Center.

17 15. Unfortunately, the difficulty treating victims of firearm injuries has  
18 increased in recent years. While deaths from other mechanisms of injury such as  
19 motor vehicle crashes has decreased over time due to safety improvements and  
20 improved care provided in trauma centers, the case-fatality rate—the proportion of  
21 gunshot wound (“GSW”) victims who die—has been increasing over the last  
22  
23

1 decade.<sup>5</sup> The reason for this is that the severity of GSW injuries has increased, likely  
2 due to more bullet wounds per person and the increased severity of those wounds.  
3 The improvements in trauma care that have led to reductions in deaths from other  
4 causes of trauma have not been able to keep pace with the severity of the GSW  
5 injuries now being treated in trauma centers.  
6

7 16. In a study of national data from trauma centers between 2003-2013, my  
8 colleagues and I showed that the case fatality rate decreased during this period for  
9 motor vehicle crash victims but did not decrease for firearm injury victims.<sup>6</sup> Case-  
10 fatality percentages across nearly all injury severity categories were decreasing for  
11 motor vehicle crash victims, yet stayed flat for firearm assault and unintentional  
12 firearm injury victims.  
13

14 17. Injuries from firearms equipped with LCMs present significant  
15 challenges to medical providers. As noted above, LCMs increase the lethality of any  
16 firearm to which they are attached by making it easier for a shooter to fire more  
17 rounds at a target in a very short period of time. Physicians in our trauma centers are  
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20 <sup>5</sup> Sauaia A, Gonzalez E, Moore HB, Bol K, Moore EE. Fatality and Severity of  
21 Firearm Injuries in a Denver Trauma Center, 2000-2013. JAMA  
2016;315(22):2465-7.

22 <sup>6</sup> Tessler RA, Arbabi S, Bulger EM, Mills B, Rivara FP. Trends in Firearm Injury  
23 and Motor Vehicle Crash Case Fatality by Age Group, 2003-2013. JAMA Surg  
2019;154(4):305-310.

1 seeing more severe injuries, and are able to save fewer gunshot victims, because they  
 2 are shot multiple times by assailants using LCMs. Recent data from California  
 3 shows that the proportion of assault patients with gunshot wounds has increased  
 4 significantly. Between 2005 and 2019, the death rate of patients with assault-related  
 5 firearm injuries treated in California hospitals increased from 22.2% to 25.2%.<sup>7</sup> This  
 6 higher mortality rate is because the injuries from firearms have become more severe,  
 7 including due to the increasing number of bullet wounds.  
 8

9 18. Like all epidemics, gun violence is incredibly complex. And while no  
 10 single law alone can end it, in my opinion ESSB 5078 is an important, evidence-  
 11 based step to improve public health and reduce firearm deaths and injuries.  
 12

13 I declare under penalty of perjury under the laws of the United States of  
 14 America that the foregoing is true and correct. Executed on October 21, 2022.  
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16 

17 Frederick P. Rivara, MD, MPH  
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22 <sup>7</sup> Brantingham PJ, Tita GE, Jung S, Ahern J. Assessment of case fatality rates and  
 23 overall prevalence of firearm violence in California, 2005-19. JAMA Network  
 Open 2022; 5(1):e2145442.



**CERTIFICATE OF SERVICE**

I hereby certify that on this 24th day of October, 2022, I electronically filed the foregoing document with the Clerk of the United States District Court using the CM/ECF system which will send notification of such filing to all parties who are registered with the CM/ECF system.

DATED this 24th day of October, 2022.



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Erica Knerr